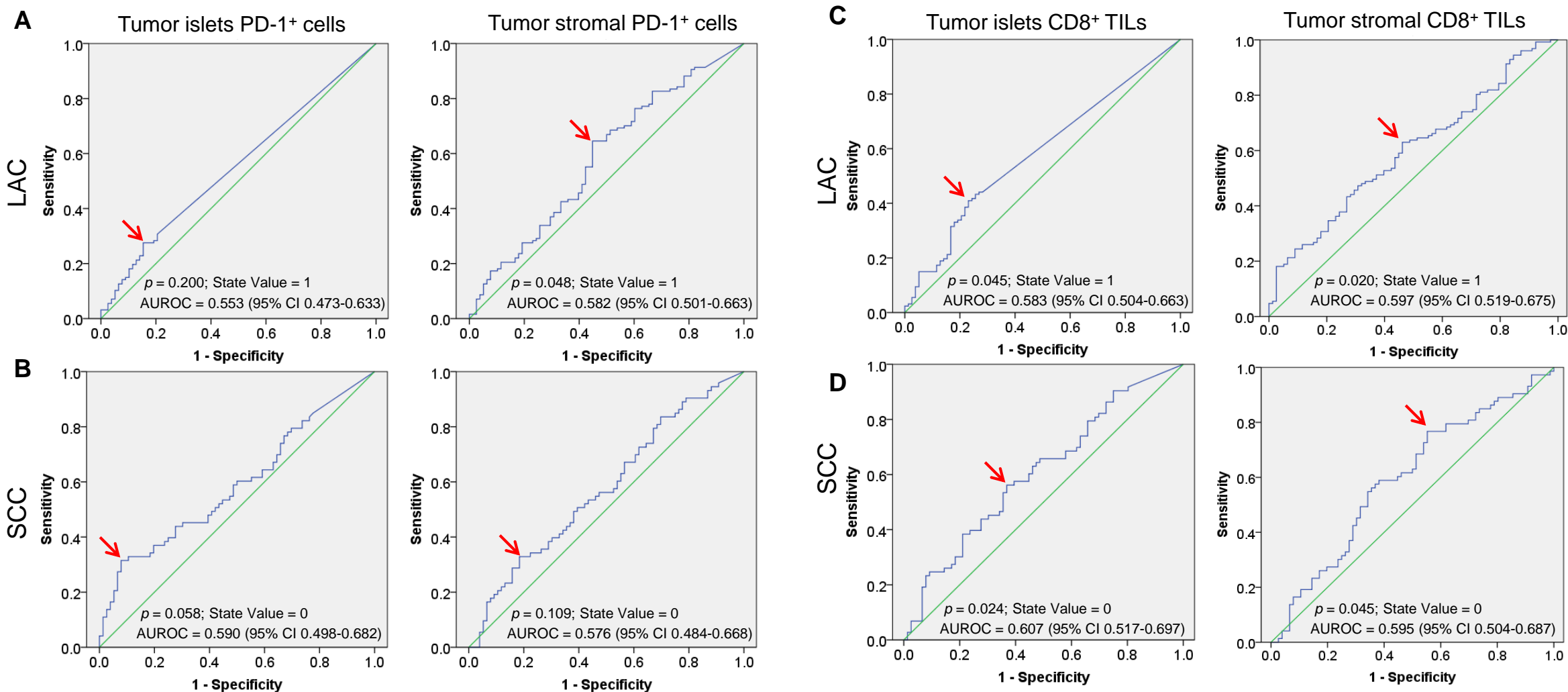
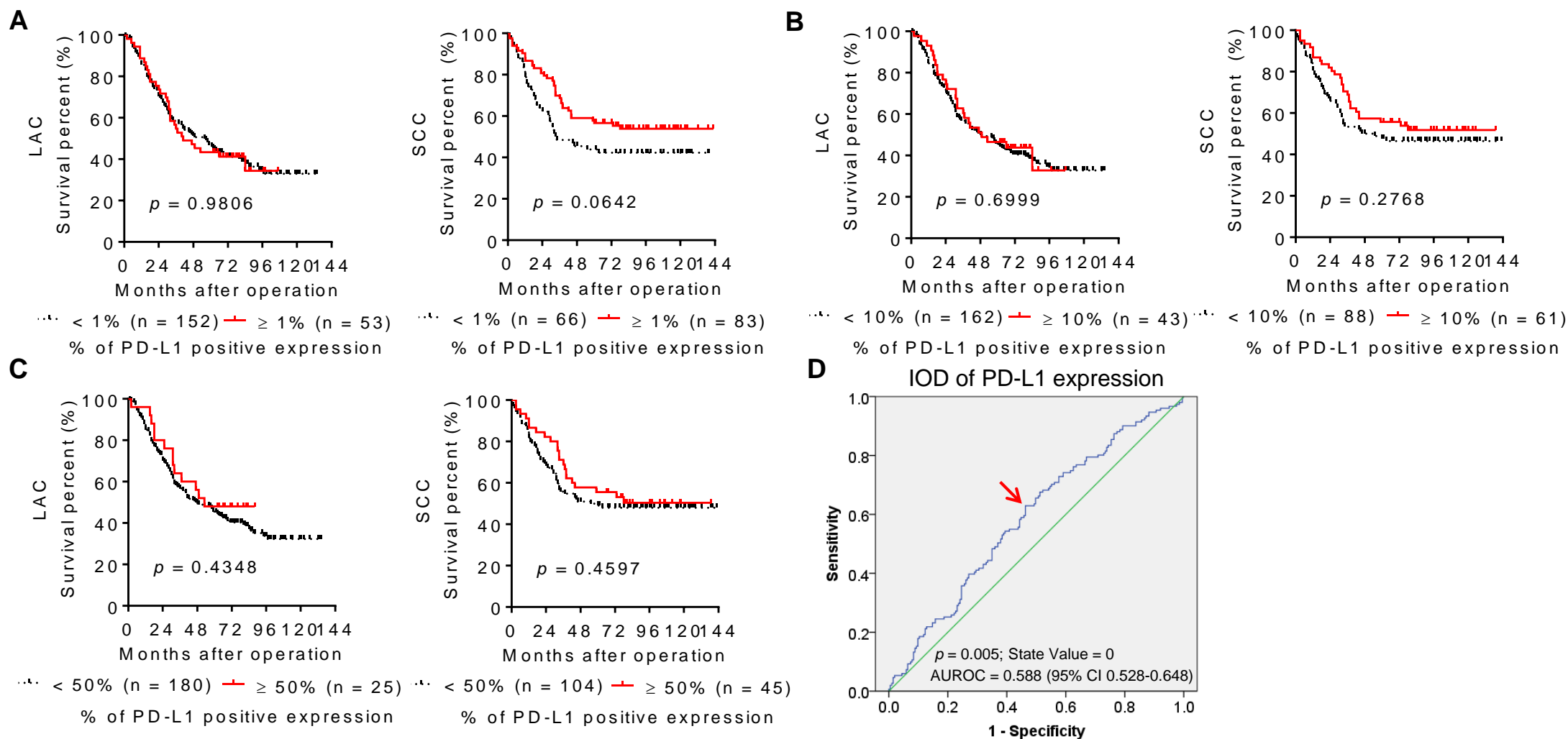


Supplementary Figure S1 Representative images of hematoxylin and eosin staining showed different tissue regions of tumor islets, peritumor stroma, invasive margin and germinal center in LAC (A) and SCC (B) . Scale bar, 50 μm.

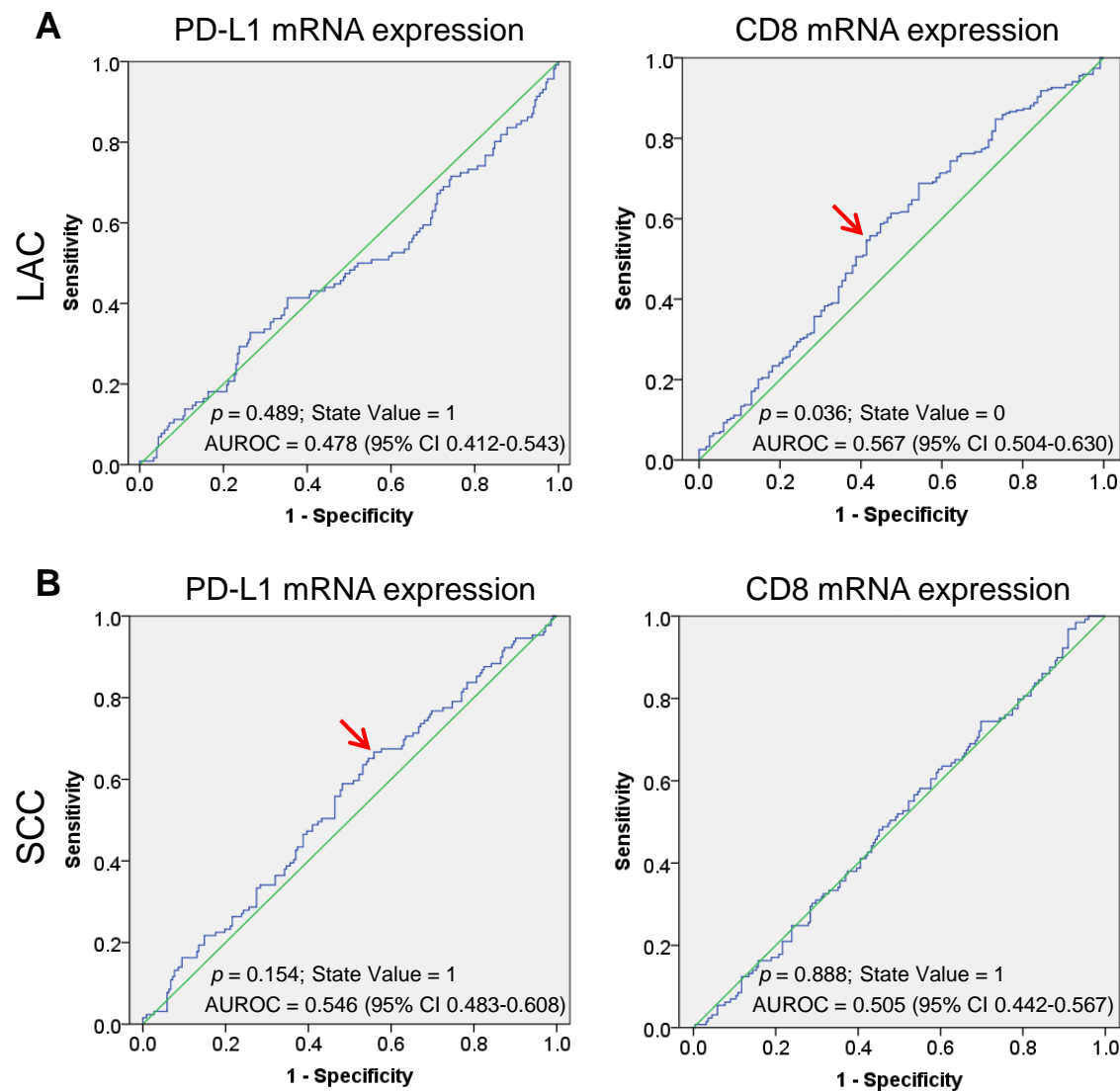


Supplementary Figure S2 The cut-off value of TILs by ROC curve analysis. For PD-1<sup>+</sup> cells in the tumor islet and stroma, (A) 14 cells/mm<sup>2</sup> and 217 cells/mm<sup>2</sup> were used as the cut-off value by ROC curve analysis in LAC, respectively; (B) The cut-off value of 122 cells/mm<sup>2</sup> and 664 cells/mm<sup>2</sup> was used in SCC, respectively. For CD8<sup>+</sup> T cells in the tumor islet and stroma (C and D), 25 cells/mm<sup>2</sup> and 710 cells/mm<sup>2</sup> were regarded as the cut-off value in LAC and 111 cells/mm<sup>2</sup> and 734 cells/mm<sup>2</sup> were regarded as the cut-off value in SCC, respectively.





Supplementary Figure S3 Kaplan-Meier survival curves for PD-L1 expression in LAC and SCC (A-C). PD-L1 expression was not significantly associated with survival of both LAC and SCC patients, regardless of the cut-off value of  $\geq 1\%$ ,  $\geq 10\%$  or  $\geq 50\%$  for positivity, respectively.  $P$ -values were calculated using the log-rank test. (D) The cut-off value of tumor cell PD-L1 expression in LAC and SCC was 0.655 IOD/ $10^4$  by ROC curve analysis.



Supplementary Figure S4 The cut-off value of TCGA data by ROC curve analysis. The ROC curves for the mRNA expression of PD-L1 in LAC and for the mRNA expression of CD8 intersected the reference line above 0.2, so the median was selected for the cut-off value. (A) The median 1.118 was used for the cut-off value of PD-L1 expression and 1.071 based on ROC curve was used for the cur-off value of CD8 expression in 385 LAC. (B) 1.105 based on ROC curve was used for the cur-off value of PD-L1 expression and the median 0.907 was used for the cut-off value of CD8 expression and in 351 SCC.